

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 7-12, and 18 are pending in the present application, Claims 1, 12, and 18 having been amended. Support for the Amendments to Claims 1, 12, and 18 is found, for example, in the specification at page 32, line 5 to page 35, line 6. Thus, no new matter is added.

In the outstanding Office Action, 1, 7-10, and 12 were rejected under 35 U.S.C. §103(a) as unpatentable over Lewis (U.S. Patent No. 3,677,616) in view of King (U.S. Patent No. 6,700,686), and further in view of Bloom et al. (U.S. Patent No. 5,311,360, hereinafter Bloom); Claim 11 was rejected under 35 U.S.C. §103(a) as unpatentable over Lewis in view of King, and further in view of Bloom; and Claim 18 was rejected under 35 U.S.C. §103(a) as unpatentable over Lewis in view of Bloom, and further in view of P. Hariharan, *Optical Holography-Principles, Techniques, and Applications*, Cambridge Press, Cambridge, 19996, pp.85, 114-115 (hereinafter Hariharan).

In a non-limiting embodiment of the claimed invention, Fig. 1 shows a diffracted light component blocking element 50 configured to block a predetermined diffracted light component. As the width of slit 51 in diffracted light component blocking element 50 is decreased, the diffracted light beams passing through the slit 51 will be more limited, allowing only the diffracted light beam L00 to pass through (See Fig. 7). Initially, it may appear that making slit 51 narrower would further decrease noise in the light beam passing through slit 51.¹

¹ Specification, page 32, lines 5-11.

However, the experimental results of the inventors have revealed that making slit 51 excessively narrow deteriorates the reproducibility of signals in some cases.² The experimental results are shown in Figs. 13-15.

As shown in Fig. 13, for slit 51 with an infinite width (i.e. no diffracted light component blocking element), the signal includes much noise.³ As shown in Fig. 14, for slit 51 set wide enough to pass L00, L \pm 11, and L \pm 12, a signal closer to the desired signal is reproduced and the original signal is stored.⁴ As shown in Fig. 15, for a slit 51 set wide enough to only pass L00 and L \pm 11, the original signal is not stored.⁵

Thus, blocking tertiary diffracted light or more in terms of an absolute value and allowing secondary diffracted light in terms of an absolute value to pass by the individual diffraction control element is advantageous.

Turning now to the rejection of Claim 1 under 35 U.S.C. §103(a) as unpatentable over Lewis, in view of King, and further in view of Bloom, Applicants respectfully submit that the amendment to Claim 1 overcomes this ground of rejection. Amended Claim 1 recites, *inter alia*, “the diffracted light component blocking element blocks tertiary diffracted light or more in terms of an absolute value and allows secondary diffracted light in terms of an absolute value to pass by the individual diffraction control element.”

The outstanding Office Action relies on Lewis to describe the claimed “diffracted light component blocking element.”⁶ However, Lewis does not describe or suggest the above-noted element of amended Claim 1.

Lewis describes that a spatial filter 33 is provided with an aperture 35. A modulator 27 creates certain diffracted orders of light in illumination beam 29. The spatial filter with

² Specification, page 32, lines 12-14.

³ Specification, page 33, lines 14-19.

⁴ Specification, page 33, line to page 34, line 1.

⁵ Specification, page 34, lines 2-3.

⁶ Office Action, page 4.

aperture 35 is designed to allow only a few diffracted orders to pass through.⁷ Fig. 2 of Lewis shows an enlarged view of spatial filter 35. Aperture 35 allows nine diffracted light orders to pass through.⁸ Lewis does not describe or suggest blocking tertiary diffracted light or more in terms of an absolute value and allowing secondary diffracted light in terms of an absolute value to pass by the individual diffraction control element.

King does not cure the deficiency in Lewis. King was only cited to describe a condensing element and provides no description or suggestion to block tertiary diffracted light or more in terms of an absolute value and allow secondary diffracted light in terms of an absolute value to pass by the individual diffraction control element.

Bloom does not cure the above-noted deficiencies in Lewis or King. Bloom describes a modulating a light beam, which diffracts a light beam, and creates the secondary, tertiary, and other orders of diffracted light. The light modulator of Bloom does not block tertiary diffracted light or more in terms of an absolute value and allowing secondary diffracted light in terms of an absolute value to pass by the individual diffraction control element.

Thus, in view of the above-noted distinctions, Applicants respectfully submit that amended Claim 1 (and Claims 7-11) patentably distinguish over the Lewis, King, and Bloom, taken alone or in proper combination. Amended Claim 12 is similar to amended Claim 1. Thus, Applicants respectfully submit that amended Claims 12 patentably distinguish over the Lewis, King, and Bloom, taken alone or in proper combination, for at least the reasons give for Claim 1.

With respect to the rejection of Claim 18 as unpatentable over Lewis in view of Bloom, and further in view of Hariharan, Applicants respectfully submit that the amendment to Claim 18 overcomes this ground of rejection. Amended Claim 18 is amended to recite, *inter alia*, “the diffracted light component blocking element blocks tertiary diffracted light or

⁷ Lewis, col. 4, lines 16-26.

⁸ Lewis, col. 4, lines 44-46.

more in terms of an absolute value and allows secondary diffracted light in terms of an absolute value to pass by the individual diffraction control elements.” Lewis and Bloom do not describe or suggest this element of amended Claim 18 for at least the reasons stated above for amended Claim 1.

Furthermore, Hariharan does not cure the above-noted deficiencies in Lewis and Bloom. Hariharan was only cited to describe that the recording of a hologram in a holographic recording medium requires that the holographic recording medium be responsive to the incident light. Hariharan does not describe or suggest the claimed “the diffracted light component blocking element blocks tertiary diffracted light or more in terms of an absolute value and allows secondary diffracted light in terms of an absolute value to pass by the individual diffraction control elements.”

Thus in view of the above-noted distinctions, Applicants respectfully submit that amended Claim 18 patentably distinguishes over Lewis, Bloom, and Hariharan, taken alone or in proper combination.

Consequently, in view of the above amendments and comments, it is respectfully submitted that the outstanding rejection is traversed and that the pending claims are in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)